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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,704	09/17/2003	Yoichi Nemugaki	242935US3	3973

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1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

LAZORCIK, JASON L

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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05/12/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/663,704	Applicant(s) NEMUGAKI, YOICHI	
	Examiner JASON L. LAZORCIK	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-11 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-11, and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/13/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants newly submitted amendment to claim 14 requires that the quench nozzles are swung "in synchronization with the movement of the conveyed glass sheet". As supporting basis for this limitation, Applicant points to the bridging sentence between specification pages 17-18 which states in part that "each of the air nozzles 25A to 25J in Fig. 4 employs a swingable head so as to blow air perpendicularly to the conveying plane of a glass sheet". Applicant further notes that the glass sheet is curved in the conveyance direction, and concludes that the nozzles are thus inherently synchronized with the movement of the glass sheet.

After careful review of Applicants specification as originally filed, it is the Examiners position that said specification would not have reasonably convey claimed "synchronization" of the nozzle heads with movement of the glass sheet to one of ordinary skill in the art at the time of the invention. As will be shown in the following art

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rejection, the mere recitation that nozzles direct quench air perpendicularly to the glass surface neither requires that the nozzles are always and exclusively directed perpendicularly to the glass surface nor does it in any manner convey an element of coordinate or synchronized movement of said nozzles. The Examiner is therefore not in agreement with Applicants assertion that the disclosed apparatus "inherently requires the nozzles to swing with the movement of the conveyed glass sheet so as to match the changing curvature of the glass sheet". In view of the foregoing, it follows that Applicants newly submitted limitation to claim 14 fails to find written basis in the specification as originally filed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nemugaki (WO 00/78685 where US 6,722,160 B1 is applied as the English language translation) in view of West (US 4,716,923).

As previously presented with respect to **Claim 8**, Nemugaki teaches (see Claim 1) an “air-cooling/tempering method for air cooling and tempering a glass plate” comprising

- 1) “a transferring device” or conveying means
- 2) Providing “a plurality of air-blowing heads positioned along the transferring device which blow air to the upper and lower faces of the glass plates” which are held equivalent to the plurality of upper and lower blowing methods.
Each of the plurality of air supply boxes is provided with a damper and each box is connected to a respective blowing member via a plurality of flow paths as evidenced by figure1. It is understood that since the blowing of air can be “started and stopped, the apparatus inherently incorporates an air-supply which is capable of controlling the “blow/stop” operation of cooling air to each of the blowing members
- 3) The process comprises “stopping the blowing of air in the air-blowing area” which is held equivalent to the claimed step of “stopping the cooling air from all of the upper and lower blowing members in the cooling area in an initial state”,
- 4) A second step of “starting the blowing of air when “an entirety of the glass plate is transferred into (the apparatus” which is held equivalent to the

claimed step of "flowing cooling air from all of the upper and lower blowing members when the substantially whole of a conveyed glass sheet is entered in the cooling area,

- 5) And a further step of "stopping the blowing" and as set forth in the reference claim 3 stopping said blowing in "a sequential order of areas though which the glass plate is passed" which is held equivalent to the claimed process of sequentially stopping the cooling air blown to the conveyance position of the glass sheet after the last glass sheet in the cooling area is passed.

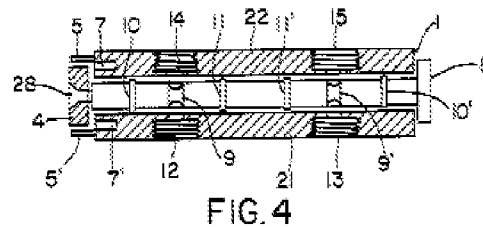
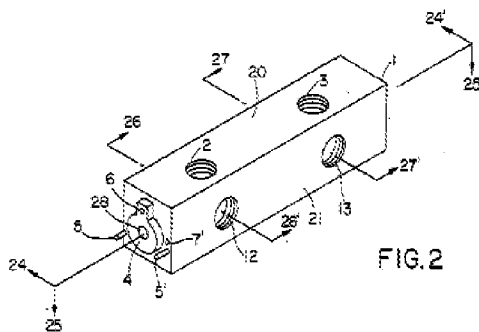
Regarding **claims 10 and 11**, the immediate reference clearly indicates that the "transferring device comprises a plurality of tempering rollers" (Column 22, Line 22-23) and that said rollers "move vertically with the transfer of the glass plate" (Column 22, Lines 30-32).

With respect to the newly added limitations directed to the structure of the cylindrical dampers, Nemugaki '160 teaches with reference to figure 8 that "dampers 250S...252b...are respectively provided at air supply ports...formed in air-blowing boxes. The dampers ...are controlled independently to be opened and closed by means of a controller (not shown) respectively" (Column 15, lines 1-11). The reference further teaches that (Column 12, lines 4-17, and figure 4) that the blowing heads are connected to respective plenums by a plurality of "air introducing ports" and it is further evident from the instant reference figure 8 that each of the ports is provided with a

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damper. Nemugaki '160 is silent regarding the particular structural details of these dampers. However absent any unexpected and compelling evidence to the contrary, it is the Examiners position that that one of ordinary skill in the art could here substitute any design of damper or other valve capable of providing the requisite independent control over air flow in each of the air blowing heads under typical operating conditions.

With the foregoing in mind, West (US 4,716,923) teaches a manifold valve structure designed to manage parallel fluid flows similar to that encountered in the plurality of "air introducing ports" from the Nemugaki apparatus. With particular attention to the excerpt figures 2 and 4 below, West teaches a cylindrical damper (8) having a plurality of perforated holes provided at its side (9), a casing (21) for rotatably accommodating the cylindrical damper (8) and for forming air channels (12, 13) between the plurality of perforated holes (9) and a plurality of respective flowpaths and a slide bearing (10) provided in a space between the cylindrical damper and the casing. The reference teaches that the instant valve manifold arrangement is capable of "simultaneously isolating and connecting both the inlet and outlet ports of parallel fluid control devices, as a single unit".



One of ordinary skill in the art would recognize the benefits of utilizing a single valve manifold to control the plurality of "air introducing ports" in the Nemugaki, namely decreased investment costs and a reduced operational complexity. For at least this reason, the West valve manifold would have represented an obvious candidate for the Nemugaki damper system, and it would have been obvious for one of ordinary skill in the art to try said arrangement. Further, a modification of the Nemugaki apparatus to include the flow dampers set forth by West would likewise implicitly impart the claimed step of "adjusting the rotational position of the dampers" into each of the identified process steps 3, 4, and 5, above.

Although not relied upon for the instant art rejection, the prior art herein made of record provides further evidence (see Spragens (US 3,098,506), Holden (US 6,206,028), and DePuy (US 3,894,559)) that the use of a single valve manifold to simultaneously control multiple parallel fluid flow paths has been well established in the valve arts.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nemugaki (WO 00/78685 where US 6,722,160 B1 is applied as the English language translation) as applied above to Claim 8 and further in view of Julio (US 3,231,353).

In short as set forth above, Nemugaki '160 teaches the apparatus for conveying a glass sheet comprising the claimed upper and lower blowing members in parallel along the conveyance direction along with the requisite air-supply boxes and air supply source. The reference further teaches a method of conveying and tempering the glass sheet by first stopping the flow of cooling air from all blowing members, second conveying a sheet into the cooling area, third start cooling air flow from all blowing members, and fourth sequentially stopping cooling air flow as the sheet is conveyed downstream of a given upper/lower blowing member.

As previously set forth, the Nemugaki '160 reference indicates that "the air-blowing heads are each disposed between the adjacent tempering rollers ...and configured to move vertically" (column 22, lines35-37). The heads are raised and lowered in response to the conveyance of the glass sheet along the direction of conveyance. The air nozzle associated with each of these blowing heads is therefore understood to be "swingable" in the conveying direction of the glass sheet. That said, Nemugaki is silent regarding the particular process limitation wherein "the cooling air is blown perpendicularly to a surface of the conveyed glass sheet by swinging the air nozzle".

The reference to Julio (US 3,231,353) teaches a tempering nozzle equipped with a flexible tip "which is adjustable both relatively and vertically of the nozzle base and free to bend with respect to the nozzle base" (Column 1, lines 30-33). Julio teaches that quenching air passed through the nozzles actuates an oscillatory swinging motion of the tip and the quenching spray pattern issuing therefrom. It is understood from the disclosed spray nozzle geometries (see figs. 4,6,8, and 10) that the quenching air is directed essentially perpendicularly to the substrate surface at least during portions of this oscillatory motion of the nozzle. Finally, the reference teaches that through rotation of the spray nozzle tip, the oscillatory direction of the quench spray may be controlled "to give any desired spray pattern" (Column 4, lines 30-54), and Julio indicates that one of ordinary skill in the art would be fully equipped to determine the appropriate nozzle arrangement to achieve this desired spray pattern. In view of the foregoing, it is the Examiners position, absent any compelling evidence to the contrary, that arranging these swingable nozzles to be swingable at least nominally in the direction of glass sheet conveyance would have been derived through no more than routine experimentation and optimization by one of ordinary skill in the art at the time of the invention.

Now, Julio discloses that the "swingable" nozzles in the instant reference are useful for obtaining "a more efficient use of the cooling medium so as to" impart greater tempered strength thin glass sheets". In view of the instant disclosure, it would have been obvious for one of ordinary skill in the art to employ the Julio swingable nozzles in the quench nozzles of the Nemugaki '160 apparatus particularly for one of ordinary skill

seeking to increase the efficiency of the cooling process. Further, since the oscillatory motion of Julio swingable nozzles is affected by the air blowing there through and since the blowing operation is synchronized with the movement of the conveyed sheet as discussed with reference to the Nemugaki disclosure, it follows that the nozzle swinging would implicitly be “in synchronization with the movement of the conveyed glass sheet”.

Therefore in light of the Julio teachings, it would have been obvious to one of ordinary skill in the art to modify the Nemugaki ‘160 apparatus with the Julio adjustable air-nozzles, which are “swingable” in the conveyance direction of the glass sheet, in order to enhance the efficiency of the tempering operation.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nemugaki (WO 00/78685 where US 6,722,160 B1 is applied as the English language translation) and West (US 4,716,923) as applied above to Claim 8 and further in view of Julio (US 3,231,353).

As set forth above, the West modification to Nemugaki ‘160 teaches the claimed rotational damper assembly and Julio teaches the claimed swingable air-nozzles to enhance the coolant efficiency of the tempering operation. Therefore the particular limitations set forth in the instant claim are rendered prima facie obvious over the combined prior art of record for the reasons set forth above.

Response to Arguments

Applicant's arguments with respect to claims 8-12 and 14 have been considered but are moot in view of the new ground(s) of rejection.

Regarding Applicants additional comments with respect to the Nemugaki disclosed device, the Examiner offers the following response;

Pointing to figures 4 and 8 of the prior art disclosure, Applicant presents an interpretation of the Nemugaki apparatus stating specifically that the Nemugaki apparatus each of the plural supplying ports 130A and 150A is provided with a separate damper. On this matter, the Examiner is in agreement with the Applicant. However, Applicant continues by asserting on multiple occasions that each separate damper of the Nemugaki reference requires separate control. With respect to this latter allegation, the Examiner is not in agreement with Applicants stated position. Specifically, the Examiner has found neither explicit nor implicit support for Applicant's interpretation of the Nemugaki apparatus, namely that "this construction requires that the opening/closing timing of the individual dampers be separately controlled".

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cited references have been made of record to show the state of the art in "swingable" tempering nozzles for application to glass sheet treatment and to show the state of the art in manifold valves for simultaneous control of parallel fluid flow streams. Applicants reply to the instant Office Action should carefully consider the

scope and content of each of these references in the context of the presently claimed invention.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. LAZORCIK whose telephone number is (571)272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art
Unit 1791

JLL